

# The Henry System

for raising  
enormous crops in Wheat,  
Rye, Oats and Barley



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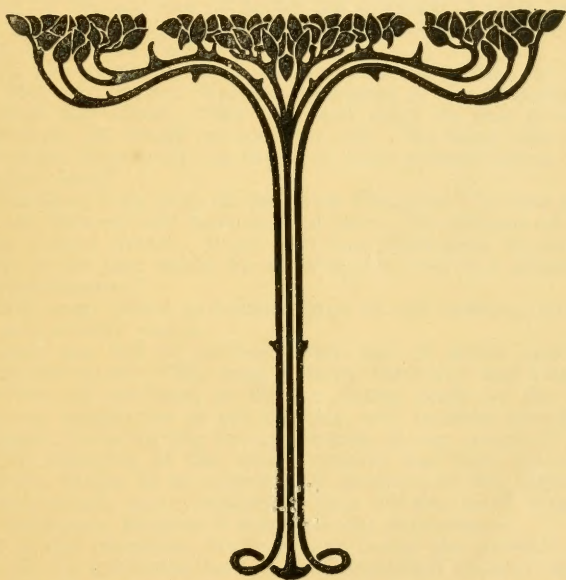
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This little essay is not intended to be a full A—Z of agriculture. That would be without any real value and object because there are hundreds of good agricultural books.

There are agricultural schools and colleges, where our young men learn all that is needed for successful farming, not only by theory, but also—and that is the most important—by practice.

There are two kinds of farming, farming for profit and farming only for living.

"Thousands of farmers are asking why they cannot make the big crops they had years ago," said Mr. S. W. Allerton, in an address made at the Chicago Corn Show, in October, 1907. "Unless the farmers are brought to a realization that they must take measures, not to rob the soil, but to maintain the fertility of the soil and to better the produce of their crops, in forty years from now there will be famine among the people of the Mississippi Valley."

On the third National Conservation Congress in Kansas City, Mo., Mr. Henry Wallace, President of the Congress, said the other day about: "We approach quick to that point, that we need all our crops for our own use. We must take care to work more intensively, in order to raise greater crops on our cultivated land."

President Taft said, on the same Congress: "A few decades later our farmers will have to feed about 200 millions of people in the United States. I am sure our intelligent farmers will be able to do that easily by working the soil in a diligent and intensive manner."

And many other prominent men of our country have said such and similar words.

Some are full of sorrow, some full of joyful confidence. All say the same: "We need a more intensive and intelligent cultivation of our land, to fill the claims made by the always increasing population of our country, and to have enough crop for export, to bring big foreign money to our people."

The attention of the whole country has been directed by the above words to an economical question of the highest importance, much more important than all the tariff, trust, and other questions, because it concerns our existence.

It is the question: How can we better the produce of the crops of our cultivated land in a systematical manner, in order to satisfy all the needs for the future?

My "Henry System" gives the answer and the simple solution of this question.

The "Henry System" is a new method to produce double and even triple crops in wheat, rye, oats and barley.

The "Henry System," which is my secret, has brought me in Germany 88 fold fruit in wheat.

It would be impossible to get such returns by the methods practised by the farmers, but it can be accomplished by the "Henry System."

The "Henry System" is the "Double Crop System," without



any exaggeration; it is no theory, but long years' experience; it brings plain, practical facts of a "Real Double Crop."

The "Henry System" can be exercised by every small or big farmer without any special costs, with the usual machines and implements and his own harvested seed.

The "Henry System" needs less seed than the usual sowing.

The "Henry System" makes the straw longer and heavier.

The "Henry System" does not work with any special fertilizer, does not exhaust the soil, but makes it better and more productive every year. Even the poorest land will bring satisfactory crops.

The "Henry System" is the result of my long years' trials and experiences.

Just this is the real value of this little book: that it brings no theoretical essays, but real facts.

Purposely I have avoided all diffuseness. For, as I said before, this book is not intended to be a manual of Agriculture.

It is only intended to explain and to show my "Henry System," this entirely new system, to gain almost 100 per cent. of the seed.

Read it carefully, do the same and be convinced.

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When I was in Shanghai, 14 years ago, an old Chinaman told me, when we were talking about agriculture: "A single grain, if it is sound and will be sowed, will bring 50-fold fruit.

"If you see, after some time, the green little blade, and you will cover it again with soil, after two or three weeks you will see two or more small blades, that will bring 100-fold fruit.

"If you will cover them for the third time with soil, you will see, after some time, four or more small blades, that will bring 200-fold fruit.

"And if you look very exactly, you will note that every time you have covered, the small blades are stronger and larger than before.

"And every time you have covered you will see the double quantity of small blades than before. And every blade will bring its usual fruit."

I answered him: "I cannot believe that if that would be really true, you could make more than 1,000-fold fruit from a single grain."

He replied, with a smile: "Yes, we could; but we cannot! Whence will you take the time? Whence will you take the place? A seed-grain, treated in this manner, would cover, with all its children, a place of about 2 to 4 square feet, after you have covered the small blades five or six times with soil."

I went away very meditatively.

The Chinamen are no doubt very good farmers. And all other farmers could learn very much from these people in regarding maintaining the fertility of the soil.

Thousands of years the same soil has been worked, and notwithstanding it gives to-day enough food for 425 millions of inhabitants.

It is said the Chinamen are very unassuming and modest in eating, but even if this is so, they must eat enough, in order to live.

It is said that China has every year awful famines. That is

right. But people telling this forget to say that a country of such extension as China will naturally have every year some regions having bad crops by dryness or flood.

Naturally famine will be in those regions, because it is impossible to the other regions having good and splendid crops, to help because of the long distances and the wanting railroads.

But is that a proof that the whole of China is hungering, if some regions of this large country have bad crops? No, indeed.

Sometimes it happens that any region of the United States, of Germany, England or any other State has a very bad crop. But no one thinks of it to say that those countries have a famine and their inhabitants will die of hunger.

The pessimists say if they hear of any famine, that the whole of mankind will die of hunger within a few centuries, because the soil could not produce enough crops to feed the mankind multiplying every year many millions.

Quite the contrary! China gives us the proof that mankind never will die of hunger.

Mother Earth has proven what she is able to do by giving fifty and one hundredfold fruit and big crops in a country that has been worked for millenaries.

Bad crops in any part of the world are always balanced by splendid returns in other regions.

If no accidents happen, as dryness or flood or something else, Mother Earth will take care that her children will not hunger in the future as has been done in the time past. Suppose the soil will not be robbed and exhausted, but its fertility maintained by reasonable cultivation, and systems and methods are used to gain the highest and best possible crops.

..

When I was at home again, in Hanover, Germany, I made up my mind to try what the Chinaman had told me.

### FIRST YEAR.

In my first season, three years after my return, I made the following three trials:

#### First Trial.

I brought manure, which had been in the yard for some weeks, to the field, put it in heaps from the wagon and spreaded it with the fork.

I plowed 6 inches deep and harrowed with a tooth-harrow. Then I made furrows 4 inches deep with a very small plow, leaving about 1-foot place between each furrow. I sowed wheat with the hand in those furrows, one bushel per acre.

(For better understanding and clearer arrangement I have changed the German land and metric measures into the American measures.)

After that I harrowed the field rectangularly to the furrows with a very light harrow, teeth being about  $1\frac{1}{2}$  inches long.

By this manipulation the furrows were about half filled.

When, after a few weeks the little blades appeared, I covered them for the second time with soil, harrowing again rectangularly to the furrows with the same light tooth-harrow.

By this manipulation the furrows were filled with soil completely.

When, after about three weeks the little blades appeared again, it seemed to me that there were more than the first time.

I got from this field 15.3 bushels per acre.

The other field I plowed 5 inches, broadcast sowed 2 bushels per acre, brought 16 bushels per acre.

The result was not very delightful, you see.

On my trial field I had sowed 1 bushel and got as crop 15.3 bushels, that is, 15.3-fold fruit.

On the other field I had sowed 2 bushels and got as crop 16 bushels, that is, 8-fold fruit.

Consequently every grain of my trial field had produced, in the average, almost the double of the grains of the other field, 15.3x8.

In spite of the dissatisfying result, I could state that the repeated covering with soil had produced almost the double returns of the single grains at my trial field, which I shall always call in the following the "Henry System A," the other method "Henry System B."

#### **Second Trial—"Henry System A."**

I worked the field just as at the first trial, but I plowed 8 inches deep and sowed in the 4-inch furrows only  $5/6$  bushel wheatseed, thinking of what the Chinaman had told me, that a grain must have a large place to bring good fruit.

I got 18.5 bushels crop, that is, 22.3-fold fruit.

#### **"Henry System B."**

The other field, also plowed 8 feet deep and broadcast sowed 2 bushels, brought 19.5 bushels crop per acre, that is, 9.8-fold fruit of the single grain in average.

You see, that the deeper plowing has brought  $3\frac{1}{2}$  bushels more on the Henry System B, and with 10 pounds less seed-wheat 3.2 bushels more on the Henry System A.

The produce of the single grains was 22.3x9.8 in average.

With this trial I was a little more satisfied than with the first, because I could hope to better the results more and more.

#### **Third Trial—"Henry System A."**

I worked the field just as at the first and second trial, but I plowed 10 inches deep and sowed in the 4-inch furrows only  $2/3$  bushels of wheat.

Then I harrowed with the light tooth-harrow as at the other trials.

I got 21.2 bushels crop, that is, 31.6-fold fruit.

#### **"Henry System B."**

I got on the other field, plowed 6 inches deep and sowed 2 bushels per acre broadcast 16.8 bushels crop, that is, 8.4-fold fruit.

You see that deep plowing is very profitable. For, whereas, the produce at the Henry System A (2 inches deeper plowed than before) was increasing by 2.7 bushels, the produce at the Henry System B was left behind the second trial by 2.7 bushels.

### **SECOND YEAR.**

#### **Fourth Trial—"Henry System A."**

Before plowing I worked the field thoroughly with the disk-



harrow, brought the manure directly from the stable to the field and spread it out with a manure spreader.

I plowed again 10 inches, and I could state that the plowing was not so hard to the horses as the other time, when I plowed 10 inches.

The harrowing with the disk-harrow was a good help and relief for the following plowing.

After plowing I used again the disk-harrow criss-cross the field, plowed then the small 4-inch furrows, sowed  $\frac{2}{3}$  bushel wheat and harrowed as described in the other trials.

I got this time 32.3 bushels crop, that is, 48.2-fold fruit.

### **"Henry System B."**

The other field, likewise treated with the disk-harrow and manure spreader with manure directly from the stable, plowed 10 inches deep,  $1\frac{1}{2}$  bushels seedwheat sowed with the disk-drill, brought 27 bushels crop, that is 18-fold fruit.

The Henry System A brought 11.1 bushels more, the Henry System B 10.2 bushels more than at the third trial.

And that was the result of the disk-harrow, the good manure and the manure-spreaders.

The returns of a single grain at both methods were 48, 2x18.

Moreover, I could state that the use of a disk-drill at the usual method is more profitable and less troublesome than broadcast sowing.

This trial shows very well that a well-prepared seedbed will always bring good and satisfactory returns. Disk harrow, best manure, manure-spreaders and deep plowing, that is the formula for a good seedbed.

Although I was sure to have prepared the seedbed as well as even possible, I did not gain the 100-fold fruit, of which the Chinaman had spoken to me, and which I had to gain by covering twice with soil, if he was right.

I had only gained the half of that, 48-fold fruit.

But my ambition and my hopes were raised by my successes made hitherto.

In the same season I made the fifth trial **"Henry System A."**

I may state that every year the stand of the wheat field was very uneven. Not only the blades were very different in size and weight, but also the ears. There were ears with 60 to 70 grains, and others had only 10 or 15 grains.

And a great number of blades did not stand in the lines of the furrows, but beside them on the soil, which was left between the furrows, in order to cover the furrows with this soil by the tooth-harrow after sowing, and after that time where the small blades appeared.

At the sowing with the hand, those grains had fallen beside the furrows, because it was very difficult and troublesome to hold the lines of the furrows.

Some of those blades were torn out of the soil by the second harrowing, and some of them were not covered with soil the second time, and, therefore, brought none or small fruit.

In order to avoid this irregular sowing with the hand, I used this time a garden drill for the sowing in the four-inch furrows.

And when the little blades appeared I could state with pleasure that they made quite straight lines.

I had better results this time, because all the grains and blades were covered twice with soil, and none of the blades were passed by or torn out by the harrowing tooth-harrow.

I got 36.5 bushels crop, that is, 54.5-fold fruit.

Notwithstanding I could state again a very uneven stand of the field, just as at all the other times.

Indeed, the lines were straight, but the single blades were very different in size and results of the ears.

The other field of the "**Henry System B,**" just treated as at the fourth trial, brought 27.7 bushels, a little more than the other field of the Henry System B of the fourth trial. It was 18.4-fold fruit.

I was very low-spirited, because I had again this awful uneven stand.

And I thought again of what the Chinaman had told me: A grain, if it is sound, will bring one-hundred-fold fruit, if covered twice with soil.

I knew my seedbed was in best condition. But was my seed-wheat of best quality and health?

The fact of the uneven stand of the field and the enormous differences in the returns of the single ears seemed to prove that there were grains contained in the seed-wheat that were not good and sound.

If one ear brings seventy-five or eighty grains, another ear but ten or fifteen, and if the whole seed is worked and treated in the same way, then there must be an important difference in the fertility and quality of the single seed-grains.

Therefore, I made up my mind to take my next seed-wheat exclusively from that part of the field that had the best and largest blades and ears.

I did so at these fourth and fifth trials, and you will see the better results in my next trial.

### THIRD YEAR.

#### Sixth Trial—"Henry System A."

I worked the field just as described in my fourth trial, used again the garden drill for the sowing as at my fifth trial, and sowed the seed-wheat, that I had selected of the best part of the fourth and fifth crop.

I had this time a pretty solid and even stand of the field.

I got this time 47.3 bushels crop, that is, 70.6-fold fruit.

#### "Henry System B."

This field, just as prepared as the last times and one and one-half bushels of the selected seed-wheat, sowed with a disk-drill, brought thirty-six bushels crop, that is, twenty-four-fold fruit of a single grain in average.

By the good selected seed-wheat I had an increase of 10.8 bushels at the Henry System A, and of 8.3 bushels at the Henry System B.

### FOURTH YEAR.

#### Seventh Trial—"Henry System A."

In this season I made the following two trials:

During this time I read in a farm paper that the selecting, cleaning and grading of the seed-grain by a fanning mill should work wonders in obtaining large yields.

Therefore, I selected my seed-wheat again from the best part of the last crop, and worked it thoroughly by a fanning mill.

I prepared the soil just as before, sowed this selected and cleaned seed-wheat; harrowed twice as usual, and got a crop of 58.5 bushels, that is, 87.3-fold fruit.

I had this year the best stand of crop I ever had in all the years. It was even and solid; it could not be better expected.

### **"Henry System B."**

This field brought 44.3 bushels, that is, 29.5-fold fruit.

The use of the fanning mill had increased the produce of the crop at the Henry System A with 11.2 bushels, at the Henry System B with 8.3 bushels.

The fanning mill does not only strike out all the unsound, bad, damaged and unripe grains, but also the weed seeds.

I must state that the fanning mill is one of the most important and useful implements on the farm.

The price of a fanning mill will pay itself at a small farm in one year through splendid crop results.

A comparison of the crops made hitherto:

#### **"Henry System A"**

#### **"Henry System B"**

1st trial..	15.3 bushels, 15.3-fold fruit;	16.0 bushels, 8.0-fold fruit
2d trial...	18.5 bushels, 22.3-fold fruit;	19.5 bushels, 9.8-fold fruit
3d trial...	21.2 bushels, 31.6-fold fruit;	16.8 bushels, 8.4-fold fruit
4th trial..	32.3 bushels, 48.2-fold fruit;	27.0 bushels, 18.0-fold fruit
5th trial..	36.5 bushels, 54.5-fold fruit;	27.7 bushels, 18.4-fold fruit
6th trial..	47.3 bushels, 70.6-fold fruit;	36.0 bushels, 24.0-fold fruit
7th trial..	58.5 bushels, 87.3-fold fruit;	44.3 bushels, 29.5-fold fruit

I was more than satisfied with what I had reached.

I had almost reached what the Chinaman told me, and what is written in the Holy Bible, as a very good result in St. Matthew, Chapter xiii, in the parable of the sower: But other fell into good ground and brought forth fruit—some an hundred-fold, some sixty-fold, some thirty-fold.

And Palestina was at that time known as the most fertile country in the world, more fertile than Egypt and Sicily.

### **Eighth Trial—"Henry System A."**

I started the same as at the seventh trial of the same year, and I got 57.3 bushels, that is, 85.5-fold fruit, a little bit less than at the seventh trial.

#### **"Henry System B"**

I sowed only 1 bushel and got 28.7 bushels crop, that is, 28.7-fold fruit.

This last result shows that not very little seed brings good crops, but that the repeated covering with soil brings the splendid results.

As at the Henry System B, every grain had brought about the same returns as at the seventh trial— $29.5 \times 28.7$ —this is the proof, that one and one-half bushels to sow is the least quantity that should be sowed at the usual method to bring satisfactory crops.



## FIFTH YEAR.

After having reached this satisfactory result in wheat crops, I sowed this year wheat, rye, oats and barley in the same way, treated the seed-grains as well as the soil in the described and known manner.

I sowed at the Henry System A  $2\frac{2}{3}$  bushel wheat,  $2\frac{2}{3}$  bushel rye, 1.4 bushel oats,  $\frac{3}{4}$  bushel barley.

I sowed at the Henry System B  $1\frac{1}{2}$  bushels wheat,  $1\frac{1}{2}$  bushels rye, 3 bushels oats,  $1\frac{1}{2}$  bushels barley.

I got good crops at both methods.

### At the Henry System A:

Wheat .....	58.0 bushels, that is, 86.6-fold fruit
Rye .....	59.0 bushels, that is, 88.1-fold fruit
Oats .....	102.5 bushels, that is, 73.2-fold fruit
Barley .....	55.0 bushels, that is, 73.3-fold fruit

### At the Henry System B:

Wheat .....	43.0 bushels, that is, 28.7-fold fruit
Rye .....	45.5 bushels, that is, 30.3-fold fruit
Oats .....	76 bushels, that is, 25.3-fold fruit
Barley .....	44.3 bushels, that is, 29.5-fold fruit

Statistics before me show an average crop for the United States for the year 1909:

In wheat, 15.8 bushels; in rye, 16.1 bushels; in oats, 30.3 bushels; in barley, 24.3 bushels.

The best crop was in wheat, 28.2 bushels; in rye, 25 bushels; in oats, 50 bushels; in barley, 44 bushels.

My Henry System A had produced in this year:

More Than the Average of United States.		More Than the Best Crop of United States.	
Wheat .....	42.2 bushels	Wheat .....	29.8 bushels
Rye .....	42.9 bushels	Rye .....	34 bushels
Oats .....	72.2 bushels	Oats .....	52.5 bushels
Barley .....	30.7 bushels	Barley .....	11 bushels

The Henry System B had produced in this year:

More Than the Average of United States.		More Than the Best Crop of United States.	
Wheat .....	27.2 bushels	Wheat .....	14.8 bushels
Rye .....	29.4 bushels	Rye .....	20.5 bushels
Oats .....	45.7 bushels	Oats .....	26 bushels
Barley .....	20 bushels	Barley .....	0.3 bushels

## SIXTH YEAR.

The next year I had the following crops:

### At the Henry System A.

Wheat .....	59.5 bushels, that is, 88.8-fold fruit
Rye .....	61 bushels, that is, 91.1-fold fruit
Oats .....	105.3 bushels, that is, 75.2-fold fruit
Barley .....	56 bushels, that is, 74.7-fold fruit

### At the Henry System B.

Wheat .....	44	bushels, that is, 29.3-fold fruit
Rye .....	46.3	bushels, that is, 30.9-fold fruit
Oats .....	74.5	bushels, that is, 24.8-fold fruit
Barley .....	46	bushels, that is, 30.7-fold fruit

### SEVENTH YEAR.

My last year in Germany brought me the following results:

#### At the Henry System A.

Wheat .....	59	bushels, that is, 88.1-fold fruit
Rye .....	61.2	bushels, that is, 91.3-fold fruit
Oats .....	107.0	bushels, that is, 76.4-fold fruit
Barley .....	54.5	bushels, that is, 72.7-fold fruit

#### At the Henry System B.

Wheat .....	45.5	bushels, that is, 30.3-fold fruit
Rye .....	45.7	bushels, that is, 30.5-fold fruit
Oats .....	78	bushels, that is, 26 -fold fruit
Barley .....	44.7	bushels, that is, 29.8-fold fruit

After this last crop I left Germany with my family. We came to this country and bought our own farm of ninety-six acres in Maryland in order to get rich by the Henry System.

But we had a very big misfortune. Two weeks after we had bought the farm I got the malaria fever, and was in bed for eleven weeks.

And I could not again get my former health. Every three or four weeks I got again the chill and the shivers, and this awful fever.

Under those circumstances it was really impossible for me to take care of the land myself.

I had a very bad crop, because I had very bad farm hands, two Germans, who understood nothing of farming. I heard later the one was a grocer and the other had learned nothing.

I had a crop of nine bushels wheat and eight bushels rye.

You see, if you have men who are only interested in their own commodity, inaction and doing nothing, you can never get on.

After twelve months, when I was so weak and sick that my wife feared for my life, we made up our minds, with aching hearts, to leave the farm and sell it.

But, should I make a secret of my long years' trials and experiences? No, I would not, because it would have been wrong. And, therefore, I have published this little book for the use and the profits of the American farmers.

By all that I have written, you can see that best prepared seed-bed and best seed-grain always will bring good results at both methods.

Maybe a virgin soil does not need so much working to gain splendid results. A long-worked soil, prepared in the best possible manner, will always bring just as good and better results.

Indeed, I have not reached the result that I wanted, and that the old Chinaman had stated as possible, and that the Holy Bible tells as best returns, but I have almost reached it.

But just this fact shows the enormous value of a well-prepared seed-bed and best selected seed, and the enormous cre-

ative power and fertility of Mother Earth when she is treated well.

I wanted to do the same work in this country, but I have been hindered, as I said, by my continual sickness.

But I would not wait any longer to publish my trials hitherto made, because I thought that such returns, which every intelligent farmer easily can produce by doing as I did, should not be kept a secret.

Maybe the Henry System A seems to you too much trouble by the sowing and the repeated covering with soil. But I would advise making a trial this year with only one acre or two, and I am sure you will be convinced with this first trial.

If a little more work brings such big returns more than the usual methods, it would be a very bad practice not to take the best, if you can have it.

Maybe you are satisfied with the results of the Henry System B, that I have described; work your field in that manner as I did, with disk-harrow, best manure, manure-spreader, deep plowing, again disk-harrow, and drill selected, cleaned, graded best seed-grain, and your returns will be—like mine—the double and triple of the usual average.

Such returns make the farming a delight to every farmer and his family.

It is really the highest time that the farmer gets his condign profits for his labor.

Before he can own a farm, he must work hard a long time of his working life, till he has made enough money to buy a farm.

Then he has every year to work hard again—he has to plow, to harrow, to sow—in a word, he has to till the field—he has to take care of his horses and of his farm implements; he must harvest the crop, thrash it and bring it in.

And then the city man comes in and offers him a price for his crop, the market price made by the speculators and the big wholesale dealers, not a price that would really pay for his wheat and his hard work.

Who has the big profit and the small labor? The city man.

Who has the big labor and the small profit? The farmer.

And this fact probably will be worse every year in the future.

Therefore, there is only one remedy to the farmers—to get **BIG CROPS**, to be really paid for their hard work.

For, no matter, if you have a bad crop, or if you have a big crop, your work and labor is the same.

Therefore, if you can make thirty or more dollars more than hitherto from every acre of your land every year, would you not do that with pleasure?

Then let the city man come and buy your crop. Of course, he will earn still more than hitherto by your big crops; but you earn more, too. And you will know, when you have your dollar notes in your hands, for what you have worked.

Have you ever heard that a farmer has become a millionaire? I never.

But you can get rich by using the methods described in this little book.



The principal matter is a best prepared seedbed and best selected seed.

The above-described methods make it possible that every acre brings every year about \$30 to \$40 more than the average. And because a big crop makes no more trouble and labor than a bad or small average crop, the amount that is over the average is net profit.

For instance, a farm of 100 acres wheatland would bring—at a price of \$1.00 per bushel wheat—according to the average crop as above, about \$1,600 gross receipts, less about \$500 for material and working (\$5.00 per acre), net profit, \$1,100.

The same farm would bring, worked after the "Henry System A," about \$5,900 gross receipts, less \$500, as above, \$5,400 net profit.

Or after the "Henry System B," about \$4,500 gross receipts, less \$500, as above, \$4,000 net profit.

If that is not business, I don't know what is business.

And the value of the farm will at once be the double and triple, when every acre of it will bring, every year, the double and triple of the usual average.

Such returns recompense farming. And I take it for granted that our farmers will not lament in the future that their sons have no mind for farming.

How many young farmer folks go to town and work in stores and offices, because there they have not such hard work and have more spare time and more wages than on the farm.

But no son will leave his father's farm if he sees that there is big money in farming, that hard work brings hard and nice silver dollars, and sees that he can earn just as much and more money on his own property than as an employee in town for another.

From this moment the love to his country place, where he was born and where he spent his childhood, will return into his heart, and he will never think of leaving it again.

In the following I shall shortly repeat all what is necessary to gain splendid crop results.

### Handling of Stable Manure.

The basis for improvement is system. Stable manure always has been and always will be the principal material to maintain the fertility of the soil.

Good manure is worth, in money, about \$2.00 per ton, but brought to the land it will be worth much more; therefore care should be taken not to waste this precious stuff.

There are two satisfactory methods for handling manure: One of these is to haul and spread the fresh manure daily, or at least two or three times a week, and plow it under at once.

The other method is to allow the manure to accumulate in the stable while it is constantly tramped by the animals and kept moist by the liquid excrement, sufficient straw used to absorb the excess and to keep the stock clean, and then to haul and spread it on the land when conditions permit.

The old practice of distributing the manure by placing it in piles in the field, when thrown from the wagon, is not only a loss of time, but still more a loss of value by rain and melting snow and by distributing unevenly.

The manure spreader overcomes this difficulty, doing more effective work than is possible by the most effective hand distribution.

A manure spreader should distribute all kinds of manure evenly. There should be the same quantities spread on the outside as in the center of the space being covered.

Good manure, well handled and well spread, betters the results of the crop and improves the field.

### **Plowing and Harrowing.**

Pulverizing the surface of the ground before plowing is an important matter.

The disk-harrow and the acme harrow are splendid implements to pulverize the surface before plowing. Even a spike tooth harrow will do the work pretty well, if the soil is not too hard.

A well pulverized soil at the bottom of the furrow slices will keep the moisture. No plant can grow without moisture on the roots; the more moisture, the better.

Therefore, pulverize the surface of the ground before plowing; plow deep, it takes more moisture when it rains; it holds the moisture better; it will protect the plants against hot winds and frost.

After plowing use again the disk-harrow or the acme harrow. A so-prepared seedbed will do the best for you.

### **Seed Grain.**

Always think of it: cheap and bad seed costs most; only the best is good enough.

Secure seed containing grains of the heaviest density and as large as possible. Fanning mills or graders will separate the seed into grades according to density and size, and strike out the weed seeds.

Never take seed into the soil in the condition in which it came from the threshing machine; for wheat, as it comes from the threshing machine, contains weed seeds and more or less injured and immature grains that will not germinate.

To avoid damages by smut treat your seed with a solution of 1 lb. formalin, of 40 per cent. strength, and 50 gallons of water, by immersing it, draining and spreading it out to dry.

If you will observe all that has been written in this little book you will—like myself—get the double and triple of crops and the double and triple of money every year, and you will double and triple the value of your farm in time.

### **Some Words About Fertilizer.**

For about 50 millions of dollars fertilizers of different kinds are used every year in the United States, and—it must be said—very often in a wrong manner, so that about one-third to one-half of the above sum is spent for nothing.

Exact knowledge of causes and effects of the different fertilizers and of the need of nutritious matter of the different culture plants takes an exact knowledge in chemistry. And most of the farmers have no occasion to learn this.

But there are some universal points and rules for the use

of these fertilizers, of which everybody can make note and can guard himself against heavy losses by this knowledge.

Only the three main nutritious matters of the plants are contained in the fertilizers: that is, nitrogen, phosphoric acid and kali or potash.

Besides the mixtures often contain lime, which is intended to help better the quality of the soil and stimulate it.

Because the mixtures furnished ready for use by the factories are very high, and because it often happens that the bags do not contain all the ingredients printed on them, the farmers often buy individual ingredients and mix it themselves.

The idea may be good, for now the farmers know what they have, but the practice and execution will often be wrong, and therefore makes more damage than profit.

For first the thorough and intensive mixture of the different stuffs cannot be made as thoroughly on the farm as it is required, as can be made by the machines in the factory.

Secondly, some important points must be observed at the mixture.

For instance, some of the stuffs can make an entirely new stuff by their mixture that would be useless or even injurious to the soil.

All fertilizers containing ammoniac (decomposed nitrogen) are not allowed to be mixed with fertilizers containing lime, because the lime would change the ammoniac into a gas that would evaporate very quickly.

Also the lime mixed with phosphoric acid would hinder the dissolubility of the latter, and therefore make it of less value.

Also a mixture of lime and stable manure will not be profitable, because the latter decomposes too quickly, and the plants are not able to receive all the benefit of the nutritious matter. A great portion of the ammoniac contained in the stable manure will evaporate useless.

Nitrate of soda should be spread when the plants are already growing, because the plants then are able to receive the dissolved food.

A mixture of nitrate of soda and kali, used at once after being mixed, would have the same good success.

Kali and other salts containing potash and lime should be plowed under in the fall.

Only in the case that such a salt is intended to destroy insects and their brood it should be spread in spring on the surface of the soil or easily rolled into the ground.

Quantities of fertilizers for one acre:

Nitrate of soda, about.....	200 lbs.
Sulphate of ammonia, about.....	200 lbs.
Nitrogenous lime, about.....	200 lbs.
Superphosphate, about .....	300 lbs.
Basic slag, about .....	400 lbs.
Bone dust, about .....	400 lbs.
Kali, about .....	200 lbs.
Kainit, about .....	500 lbs.
Lime, about .....	1500 lbs.
Guano, about .....	400 lbs.



The following kinds of fertilizers are not allowed to be mixed with another:

- Superphosphate with lime,
- Superphosphate with basic slag,
- Superphosphate with nitrogenous lime.
- Lime with superphosphate,
- Lime with sulphate of ammonia,
- Lime with stable manure and guano.
- Sulphate of ammonia with lime,
- Sulphate of ammonia with basic slag,
- Sulphate of ammonia with nitrogenous lime.
- Basic slag with superphosphate,
- Basic slag with sulphate of ammonia,
- Basic slag with stable manure and guano.
- Nitrogenous lime with superphosphate,
- Nitrogenous lime with sulphate of ammonia,
- Nitrogenous lime with stable manure and guano.
- Stable manure and guano with lime,
- Stable manure and guano with basic slag,
- Stable manure and guano with nitrogenous lime.

The following kinds of fertilizers can be mixed, but it is desirable, and sometimes necessary, to use the mixture at once, because several mixtures form stony lumps or melt within a few days:

- Lime with kali,
- Lime with kainit,
- Lime with nitrate of soda,
- Lime with basic slag,
- Lime with nitrogenous lime.
- Basic slag with kali,
- Basic slag with kainit,
- Basic slag with lime,
- Basic slag with nitrate of soda.
- Nitrogenous lime with kali,
- Nitrogenous lime with kainit,
- Nitrogenous lime with lime,
- Nitrogenous lime with nitrate of soda,
- Kali with lime,
- Kali with basic slag,
- Kali with nitrogenous lime,
- Kali with sulphate of ammonia,
- Kali with superphosphate,
- Kali with kainit,
- Kali with nitrate of soda,
- Kali with stable manure and guano.
- Kainit with lime,
- Kainit with nitrogenous lime,
- Kainit with basic slag,
- Kainit with sulphate of ammonia,
- Kainit with superphosphate,
- Kainit with kali,
- Kainit with nitrate of soda,
- Kainit with stable manure and guano.
- Superphosphate with sulphate of ammonia,
- Superphosphate with kali,
- Superphosphate with kainit,

Superphosphate with nitrate of soda,  
 Superphosphate with stable manure and guano,  
 Sulphate of ammonia with superphosphate,  
 Sulphate of ammonia with kali,  
 Sulphate of ammonia with kainit,  
 Sulphate of ammonia with nitrate of soda,  
 Sulphate of ammonia with stable manure and guano.  
 Nitrate of soda with kali,  
 Nitrate of soda with kainit,  
 Nitrate of soda with sulphate of ammonia,  
 Nitrate of soda with lime,  
 Nitrate of soda with superphosphate,  
 Nitrate of soda with basic slag,  
 Nitrate of soda with nitrogenous lime,  
 Nitrate of soda with stable manure and guano.  
 Stable manure and guano with superphosphate,  
 Stable manure and guano with sulphate of ammonia,  
 Stable manure and guano with kali,  
 Stable manure and guano with kainit,  
 Stable manure and guano with nitrate of soda.

Nitrate of soda is good for rich soil, to be spread over in the spring in two portions.

Sulphate of ammonia will have a little slower effect and is good for every soil.

Nitrogenous lime is good for loamy soil 14 days before sowing.

Superphosphate will have a prompt effect on heavy soil.

Basic slag is good for soils of every kind.

Bone dust is good for light soil.

Kali is used for pretty rich soil, kainit for light soil.

Lime, guano and stable manure are good for all kinds of soil.

All fertilizers, if not spread over or rolled in spring, should be plowed under very shallow in the fall.

### Some Words About Green Manuring.

Many culture plants have the peculiarity of assuming certain quantities of nitrogen from the atmospherical air for their food.

By this they become nitrogenous themselves and are able to transfer those contents of nitrogen to the soil by being plowed under.

The principal plants having this peculiarity are all kinds of leguminous plants, all kinds of clovers, vetches, cowpeas, lupins, and others.

Heavy moist loam soil prefers peas, vetches and cowpeas; light and middle soil all the other kinds of the plants called above.

The climate always has a large influence on the results of the green manuring.

In regions where the maturity of the culture plants is very late, green manuring will be possible only in a very limited manner.

For nobody would like to lose and give up the whole crop

of a year in order to plow under green manure and better his field for the next year.

The sowing of the green manuring plants into the standing cereals will be the best and only possibility in such a case.

Also in very arid regions the green manuring will not have splendid results.

The best climate for green manuring are the regions where the crop of the cereals can be done about the midst or end of July.

The effect of green manuring can always be seen stronger and quicker on light soil than on heavy soil.

On a light soil the nitrogen of the green manuring plants plowed under will be useful to the seeds sowed directly after the green manuring already for this year, because the gradual decomposition will take place just in that time, where the young plants germinate and grow.

On a heavy soil the decomposition will take place much slower, and the good result of the green manuring will be seen only in the following years.

But not only by the delivery of nitrogen to the soil the green manuring plants are very useful to the soil, but also because they send their long and strong roots into the interior of the soil, opening it and producing the moisture to the soil and to the culture plants.

Consequently the green manuring makes the soil better and richer in quality and moisture.

Nitrogen and moisture in the soil will be the useful results of green manuring.

It is always profitable that the plants sowed in a green-manured field get a manuring of phosphate of lime and kali.

The fertilizers containing nitrogen are very costly, and because green manuring can produce just the same good results with less money, the latter will be preferred by many farmers.

Quantities about taken for one acre:

Serradella, 60 lbs.; vetches, 140 lbs.; clover, 30 lbs.; cow-peas, 180 lbs.; lupins, 150 lbs.

Sometimes it is better to sow mixtures instead of single seeds.

Best results have proven by a mixture of 120 lbs. of vetches plus 80 lbs. of rye, 120 lbs. of lupins plus 25 lbs. of serradella, 125 lbs. of cowpeas plus 60 lbs. of peas plus 60 lbs. of vetches.

These mixtures, as well as single seeds, make it possible to produce to the soil about 80 to 100 lbs. of nitrogen per acre under good conditions.

It, therefore, could be said that money can be made by the farmers by using the atmospherical air for their purposes.

## The Principal Agricultural Weeds and Their Destruction.

### 1. The Corn-Thistle.

This weed prefers the good loamy soil and is very dangerous to the field, because it has very strong roots and feather seeds, easily borne by the wind into large distances.

Usual shallow plowing is no remedy against the corn-thistle, because every root wounded by the plow will produce new



plants. Shallow plowing, therefore, brings more damage than profit.

Cutting or mowing off the weeds indeed will hinder the germination of the seeds for this one year, but it strengthens the roots, so that the weeds will appear stronger than ever before in the next year.

The only direct remedy against the corn-thistle is weeding and tearing out and repeated deep plowing with following tearing out and removing of the roots and plants.

Sainfoin, rapeseed and lucern will also destroy the corn-thistle.

Induce your neighbors to destroy the corn-thistles like you. Else all labor will be for nothing, because, as before said, the feathered seeds fly very large distances, and, therefore, always form new settlements of this weed.

## **2. The Corn-Cockle**

A full destroying of this weed cannot be effected by weeding and tearing out alone, but only by holding quite clean and free from this weed the field from which you take your next seed.

Besides, a fanning mill does good work here.

## **3. The Corn-Marigold**

is a weed that appears in summer seeds, as well as in winter seeds.

In some regions it is almost unknown, in other regions a very troublesome and injurious weed, because it takes away space and manure to the culture plants.

The germination of the corn-marigold can be destroyed by repeated plowing, harrowing, weeding and tearing out in one or two summers.

Strong and intensive marling is also a good remedy against this weed.

But if your neighbor don't take care to destroy the corn-marigold, too, at the same time, all work would be useless, because this weed will infect the clean field of the neighborhood in a very short time.

## **4. The Garden-Orach**

is very injurious to potatoes, peas, beans and other garden fruits.

The only remedy against this weed is tearing out the whole plant with the roots.

A cutting and throwing over with soil is useless, because the very strong plant will break through the soil thrown over and produce very deep and stronger roots in a short time, so that it takes main strength to tear out every plant.

But this work must be done, by all means, before the weed strews its seed, for this would infect the soil for many years.

The taken-out oraches must not be left on the field, but removed and burnt.

Although the garden-orach is a good food for animals, it

should never be fed, because its seeds hold their germination in the manure, and, therefore, come to the field again.

## 5. The Bottle-Flower or Blue Bottle.

Its seed has a two years' germination in the soil. This weed can, therefore, be destroyed only for the running year by weeding and tearing out.

If in the fall the field should be deep plowed and well harrowed, and the seed of the cereals will be clean and free from the seeds of the bottle-flower by a fanning mill, the next year the field will be pretty clean from this weed.

And the few flowers that may appear again can be easily weeded.

## 6. The Meadow-Saffron.

is one of the most injurious and indestructible weeds of the meadows and pastures. It flowers in fall, in the following spring it expands its pulpos leaves, lifting the seed capsules with themselves.

The plant is poisonous, if it is eaten by animals in large quantities.

Therefore, thorough care must be taken not to drive hungry cattle to a place where this weed stands in large quantities. If the cattle have eaten something before, they will never touch the meadow-saffron.

Tearing out these awful parasites will not help much, because the onion mostly will remain in the soil.

Also corrosive means, as sulphate of iron, muriatic acid, etc., will not destroy this weed, but will injure the soil.

Also, cutting of the flowers will mostly be useless, because the onion root will germinate again.

Artificial regular irrigation and intensive manuring may be the only remedies to destroy the meadow-saffron and to preserve the meadow, because the good grasses, induced by the manure and irrigation, will form a very solid sod, through which the meadow-saffron cannot penetrate to the surface.

Oats, sowed for some years in such an infected meadow, will destroy the meadow-saffron, but the meadow will likewise be destroyed by this manipulation.

## 7. The Smooth Rye-Brome Grass

appears as two years' grass, more in winter than in summer cereals.

Its seed has a very long germination in the soil, and, therefore, it often happens that this weed suddenly appears on a field that was apparently free from it, especially in wet weather.

It cannot be destroyed by weeding, because it is impossible to recognize it early enough.

Drilling, culture and hoeing can limit this weed, but can never destroy it completely.

The best remedy is a faultiess seed grain, well selected and graded by a fanning mill.

The seed of this weed does not lose its germination in the manure of the animals, therefore such manure, produced by food of an infected field, never should be brought to a cereal

field, but to a meadow for long laying, and so destroying the seeds of this weed.

### 8. The Sow-Thistle.

There are two kinds of sow-thistle: the common sow-thistle and the field sow-thistle.

The latter is the more dangerous, because its seeds and roots have several years' germination, and the common sow-thistle has only one year's germination.

Both kinds like a good soil and are especially injurious to the summer cereals and leguminous plants.

Thorough hoeing, clover, lucern, etc., will destroy the sow-thistles in pretty short time.

### 9. The Clover Dodder

is a parasitical plant, that is very injurious to the red clover and lucern.

It is very difficult to destroy this awful weed that can make impossible the cultivation of the above plants, because its seeds cannot be recognized in the seeds of clover and lucern.

Rotation cannot help much against the clover dodder, because its seeds have a germination of 4 to 6 years in the soil.

And as soon as clover or lucern are sown on their old place—after years—the clover dodder will appear with a positive punctuality.

If the clover dodder shall really be destroyed the following must strictly be observed:

Sow quite clean clover or lucern seed grown on a field thoroughly clean and free from the clover dodder.

Don't sow for at least six years clover or lucern on fields that have suffered from clover dodder.

If you will find in any clover or lucern field some regions of clover dodder—and look very carefully for such places—make a ditch round these regions and cover them thoroughly with soil taken from the ditch, and if that should not be enough, with other soil, too, or burn them down with straw; and this latter would be the best.

Also the moistening of such places with corrosive substances, as sulphate of iron, muriatic acid, etc., will destroy the clover dodder, but likewise this would ruin the soil for some years.

The cleaning of the clover and lucern seeds for the next sowing must be done very thoroughly, even if the field is apparently free and clean from clover dodder.

### 10. The Corn Horse Tail

prefers wet and pretty light soil. Its roots are very deep, and, therefore, this weed cannot be destroyed by plowing.

Very deep drainage, repeated culture of green food and plants that must be hoed, intensive manuring will be the best remedies against the corn horse tail.



### 11. The Small Bindweed

is one of the most diffused weeds.

Not very dangerous if appearing only in single specimens, it will become very injurious to the cereals if a large quantity of those weeds appear on the fields.

It exhausts the soil, winds round the stalks of the cereals and presses them down to the ground.

The consequence will be that the cereals will lie down, give only little fruit; the drying and cutting is difficult.

Pasture and planting of fruit that must be hoed will destroy the bindweed in one rotation.

### 12. The Sheep's Sorrel.

is not very dangerous to the culture plants.

It disappears by marling and intensive manuring with lime and stable manure.

Its seeds are found especially in clover grass and lucern seeds; can be easily removed by a fanning mill.

### 13. The Wild Radish

flowers from June to September; it likes sandy soil and is often mixed with wild mustard.

The germination of its seed excels the wild mustard, and it takes many years of work to clean a field thoroughly.

The best results in destroying this weed have been gained by the following rotation: Potatoes, summer white crop, some years pasture with clover and grass, winter white crop.

After planting the potatoes the field has to be harrowed carefully, in order to bring to germination as many wild radish seeds as are possible.

Before the potatoes will appear, two or three germinations of the weed can be destroyed by repeated harrowing or weeding.

After the potatoes are outside the soil several other germinations of the wild radish can be killed by hoeing, making furrows between the potato lines and weeding.

Such and similar work must be repeated for several years in the above rotation.

### 14. The Wild Mustard or Charlock.

is very similar to the wild radish.

It flowers in June and July, and likes good loamy soil.

The seed of this weed keeps its germination for several years in the soil and has a very big reproduction.

It is very difficult to destroy this weed and it always needs several years.

The best results in destroying the wild mustard have been reached by a practical rotation; for instance: plants, whose roots are eaten, summer white crop, clover, winter white crop.

This rotation—if needed, repeated several times—will thoroughly clean the field from the charlock, especially when weeding and hoeing is helping.

Drilling of the seed, hoeing and cultivating are the best preservatives against this weed.

## 15. The Broom Rape

flowers till September, and can be found in hemp and tobacco fields.

In hemp fields it must be weeded, in the tobacco fields thorough care must be taken to take away the tobacco seeds, from which the broom rape seeds can very hardly be separated, because they adhere to the tobacco seed.

The broom rape plants grow closely to the tobacco plants and spin their stalks over, and must be weeded and torn out.

When this weed appears abundantly in a tobacco field, it can do an enormous damage.

## 16. The Common Red Poppy.

Wet weather and a wet field favor its germination and growth. It likes wheat fields and flowers the whole summer.

Drilling of the seed, harrowing, hoeing and cultivating destroy this weed within a few years.

But it is advisable to drain wet places in the fields, because such places are capable of diffusing the common red poppy always further in the whole neighborhood.

## 17. The Cockscomb

is a meadow weed that often increases, so that the crop of a meadow can be injured very much in quality and quantity.

The cutting or mowing of the cockscomb, together with the grass, is useless, because notwithstanding some seeds will germinate.

The best remedy is, to send sheep for some time on such an infected meadow for pasture in the spring, so that this year's germination will be destroyed.

Repeat this two or three years and resign entirely your first grass cutting for one year, and you will have a meadow clean and free from the cockscomb for long years.

## 18. The Common Colt's Foot

likes moist and clayish soil.

Shallow plowing will make more damage than profit, because the wounded and touched roots will grow better than the untouched roots.

Only very deep plowing in summertime, when the soil is dry, and tearing out and removing of the roots will destroy this weed.

A very good help for killing the common colt's foot is good and thorough drainage.

## 19. The Spotted Arsmart

likes a sandy low ground.

It often happens that the spotted arsmart entirely covers the whole field of oats, buckwheat, summer peas, etc., so that nothing can be done than to feed the whole standing crop to the cattle, as pasture as well as in the stable.

Sheep don't like the spotted arsmart, but horses, colts, and other cattle like it very much.

The only remedy against this weed is the cultivation of cabbage, red beets, carrots, beet-roots for several years.

## 20. The Silky Bent Grass

especially injures the winter cereals.

It often happens that more silky bent grass is on any field than cereals.

But this is always the consequence of a wrong tillage.

Because its seeds are almost always in the soil, the harrowing of the **wet** soil is its best forwarding means.

Thorough manuring, deep plowing, sowing and harrowing in suitable dryness of the soil—not too wet and not too dry—drainage of the wet places of the field, are good remedies against this weed.

Grass seeds should be taken only from a field that is completely clean and free from silky bent grass, because it is very difficult to separate the seeds of this weed from the good grass seeds.

## 21. The Corn-Camomile

is very frequent in some regions and especially injures the winter cereals by exhausting the soil.

Root plants, clover, lucern, etc., will destroy the camomile, but there must be an agreement made with the neighbors for the same work, because the seeds of the camomile are very light and fly long distances borne by the wind.

## 22. The Spurge or Wartwort

often can be found on meadows and pastures in big quantities.

The cattle do not like this weed and, if there is enough other food on the pasture, will not eat it.

Therefore, a big quantity of spurge seeds will germinate every year and infect the whole field in a pretty short time.

A good culture and a good manure is a good remedy against this weed, because the grass will overcome it very soon.

Grass and clover seeds often contain spurge seeds and capsules, therefore care must be taken to clean these seeds before sowing.

## 23. The Wild Oats

are a great trouble to the summer cereals, especially to the usual oats.

This weed is very similar to the usual oats and often appears unnoticed in large quantities in oats fields.

The seed of this weed has a very large germination and is easily blown away by the wind, therefore a great danger to the whole neighborhood.

It is very difficult to destroy this weed, unless all the farmers of the neighborhood enter into its destruction.

Thoroughly clean seed, taken from a field that was completely clean and free from wild oats, culture of rapeseed, and of fruits that must be hoed, are effective remedies against the wild oats.



Or such infected fields must be made to pastures for some years.

Seeds of an oat field that is infected by the wild oats should never be used for sowing, because it is very difficult to separate the weed seeds from the seeds of the good usual oats.

## 24. The Couch Grass or Quick Grass

is very nourishing as meadow grass, but very injurious to the cereals fields.

Preferring sandy soil, it takes away space and food to the culture plants and presses them to death.

Plants whose roots are eaten and leguminous plants can be freed from the couch grass only by continual hoeing, and that just for that summer.

Should it happen that the couch grass is found on a clayish soil, it will mostly do to destroy it by shallow plowing in the dry season, and tearing out the plants and roots that will wither very soon on the field.

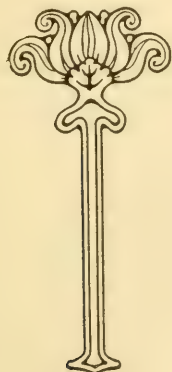
But care must be taken that all plants are destroyed, because in the other case the work must be repeated in the next year.

When the quick grass has infected sandy soil it is very much harder to destroy this weed.

Very deep and repeated plowing and rolling of the infected field is a good remedy.

A three years' pasture of the infected field will destroy the quick grass completely.

Also rapeseed and rye, strongly and intensively manured, will sometimes do good to destroy this weed.



## GENERAL ESSAY.

Often I have found, on an usual wheat field, bunches of ten and more blades, being connected with one root texture.

This is proof that a single grain can produce a large number of blades under certain very favorable and advantageous conditions without being covered with soil several times.

Indeed, the field was prepared in the best and faultless way, and the seed grains were the best that could be taken.

But what is the reason that only several grains bring such enormous returns of 300 and more-fold fruit, whereas other grains, on the same field, bring only the usual average produce, and other grains bring nothing at all?

In all my trials I could not find this out.

Agriculture still proposes riddles that to solve is reserved for the near or far future.

For the present time we must be satisfied with the experiences hitherto made, to secure a good prepared and best cultivated soil and best seed and scrupulous working, in order to gain the best possible results.

In the following I shall shortly repeat what has been to me very profitable:

(1) Before plowing, the surface of the ground must be thoroughly worked with the disk-harrow, in order to make a pulverized surface that holds the moisture.

(2) The soil must be plowed in a moist condition, not too wet and not too dry.

(3) The subsoil packer or disk-harrow must follow at once to the plow—at least on the same day—in order to make a fine and firm soil, and to fill out the holes of the soil made by the clods of the plowed field.

He who has no subsoil packer or disk-harrow should plow less deep and harrow with a heavy burdened tooth-harrow.

Of course, it cannot be expected that the results of the crop will be just as good as by the deep plowing and the use of the sub-soil packer.

(4) Splendid crop results can only be expected if the soil is treated every year in the best possible way.

(5) Fallow lands should be prepared for the winter seed in the following manner:

Early in the spring the field should be worked with the

disk-harrow criss-cross, when the soil is in good condition, that is, moist, not too wet and not too dry.

By this a pulverized surface will be made, capable not only to receive rain, light, air and warmth, but also to hold the moisture in the soil.

(6) After every rain the field should be harrowed, in order to open the surface that has stuck together and made crusty by the rain.

(7) This treatment must be continued the whole spring. The soil will then hold the moisture and get air and light which is necessary for its fertility and good condition for receiving the seed.

(8) In the beginning of the summer the field must be plowed and the subsoil packer used at once after plowing; then again use the acme- or disk-harrow.

(9) Such a treatment also kills the weeds.

After this has been done the field will be ready for the winter seed.

The "Henry System A" can be managed better and simpler by using the so-called lister, a sowing machine that forms furrows, instead of the small plow for making the 4-inch furrows, and of the garden drill.

By this not only the plowing of the 4-inch furrows is saved, but also the sowing with the garden drill, and the first covering with soil, for the lister executes these three jobs in one.

And the second covering with soil would then only remain to be done.

Because, as we know, the furrows are covered by harrowing done but once only about half, the use of a lister therefore may make it possible to repeat once more the harrowing with the light 1½-inch tooth-harrow, and to cover with soil three times.

And according to the known formula the returns of a single grain could be again doubled. That would be about 150-fold fruit from a single grain.

I am very sorry that my continual sickness on my farm in this country has hindered me in making this very interesting trial.

After and according to all my trials and experiences in Germany I think I can positively take it that a third covering with soil will very much increase the results than a covering with soil done only twice.

As soon as I shall be able to do the hard farmer's work again, I shall make this trial.

But I am sure many of the readers will have done that



before me, and I should be much obliged to any one who would tell me his experiences in this case for the profit of all.

The "Henry System A" is a furrow system which has the big advantage that the roots of the plants will grow, not only under the furrows where the seed has been sowed, but will also spread to both sides, where the soil under the furrow hills gives them the best conditions for living and growing.

For the sides of the furrow hills are falling down obliquely and therefore never form a hard and crusty soil after a heavy rain, as a horizontal surface.

The evaporation of the moisture in the soil is hindered by this, and air, warmth and light can always come unchecked to the roots of the growing plants.

This is the great advantage of the "Henry System A," that the plants, in their first growth, as long as they are little, weak and in want of defense and protection, have the use of this protection by the deep and protected situation on the ground of the furrows by the continual moisture, air, light and warmth forwarded to the roots by the hills of the furrows.

The second covering with soil makes the roots and blades—as experience shows—strong and vigorous, and induces the roots to form new roots, from which new blades develop.

The repeated harrowing for covering with soil moreover opens always again the surface of the whole field for the profit of the soil and the plants, and tears out and kills the weeds that may have settled on the field.

Many objections always have been made against the harrowing of fields of white crop.

Indeed, it is a matter of course that many young plants are torn out and destroyed by the harrow.

But when by such harrowing the other plants get conditions for living and growing, repairing the made damage in a double and triple manner, the choice should not be difficult.

When the surface of the soil is stuck together and made crusty by a heavy rain, then not only the moisture of the soil will evaporate very quickly, but also rain, air, light and warmth will be hindered in coming to the roots of the plants.

And both facts sometimes can bring the full destruction of the whole crop, but they always will bring an enormous injury and damage to the plants and, according to that, a dissatisfying crop.

I myself have found out, in the long years of my working in the field, that it is always better to harrow a crusty field than not to do it.

When the plants are too high for the harrowing with the

tooth-harrow, instead of this a wheel hoe should be used to open the surface and to destroy the weeds.

A harvested cereal field should at once be worked with the disk-harrow, in order to pulverize the surface and to bring moisture, air and light to the soil for the profit of its fertility.

We have seen that every following year brought me better crop results.

That shows the soil must be prepared for producing enormous crops for several years, and it cannot be expected that a soil, after years of bad or imperfect culture, can completely change its condition and fertility in one or two years by perfect culture.

It will take several years of good culture and working to bring the soil to that condition and fertility for producing the best possible crops.

Of course, every year that is given to the soil and the seed the best possible attention the produce of the crops will be better and more satisfactory, but it can never be expected that a field which gave a 15-bushel crop the last year will give 50 bushels the following year, even when soil and seed have had the best treatment.

It must also be guarded against plowing a field very deep that has been plowed shallow for long years.

The change should be made by degrees in about three years' time.

Because by the use of the practical rules of this little book all fruitless trials that cost time and money can be avoided; in my opinion it will not take longer than about three years for any one to gain the fine crops that I received.

Of course, an improvement of the produce of the crops will be made from the first year, when you treat your field and your seed according to the rules given above.



## EPILOGUE.

What is a farmer? A free man on his free ground; a healthy man with a solid and honest character; the best citizen of the State!

Many of our best politicians and principals are farmers' sons.

Not an uncommon education has enabled them to get along, to remove all the obstacles standing opposite to them, and to get high and honest positions, but other qualities that the boy learned in his youth on the farm.

Creative power, mind to work, energy, independent character, strong endurance, sense of duty, love for the nature, for his country, for his family, all these qualities are characteristics of the average farmer, and enable him to do the best and successful work at any place.

Such qualities are much better than all humane learning. And when the latter is added to all the above farmer qualities, such a man can and will do all what he wants, he will overcome the biggest difficulties standing opposite to him.

The strength of every nation is in the farmers.

The world cannot exist without the farmers.

Therefore be aware of this fact, be not slaves of the moneyed men and trusts. Unite in societies, unite the societies to great farmers' corporations.

Then you can make the prices for your profit and the profit of the whole country.

The United States of America has a population of more than 30,000,000 farmers. These millions should be enough and able to break the power of the trusts and moneyed men.

United farmers can decide their fate when they want. Therefore do it.





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